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BIOBASED ALTERNATIVES FOR HOTMELT ADHESIVES

Most hotmelt adhesives are based on fossil resources, but it is also possible to use biobased raw materials. Adhesives based on glutin are already in use for several thousand years but suer from low moisture resistance. Fortunately, this can be improved strongly by suicient hydrophobization and crosslinking. Also, other proteins are suicient base materials for adhesives. This includes waste materials like poultry feather which are a proper base for the preparation of wood adhesives. But also, zein, the protein from corn, can be modified in a way that it can be used as hotmelt adhesive. This protein is a side product from corn starch production and not digestible for higher creatures. Therefore, the technical use is not in conflict with food production. Other resources than proteins are also proper raw materials for biobased hotmelt adhesives. Polylactic acid is such an example. It is also biodegradable and depending on the molecular mass the adhesion properties and processing temperature can be adjusted, as well as by the utilization of additives like softener. Beside the chemistry of these kind of adhesives their (potential) application will be presented, e.g. for food packaging, including cardboard / polymer laminates for reduction of the plastic amount in packaging.